# TROPICAL DISTURBANCE OF JULY 21–25, 1934

By C. L. MITCHELL

This disturbance was unprecedented, so far as is known, in that it was of extra-tropical origin, but moved southwestward into the Gulf of Mexico and assumed all of the characteristics of a disturbance of tropical origin. Its extreme southern position was 5° south of its place of formation. The nearest recorded approach to a development and movement of this character was that of October 1913, when a secondary disturbance that formed southeast of Nantucket, Mass., moved steadily southward and southwestward for several days and then westward, and passed inland on the South Carolina coast north of Charleston with all the characteristics of a tropical disturbance of moderate intensity.

On July 20 a disturbance of wide extent was advancing slowly eastward, with center over eastern Quebec and with slowly falling pressure southwestward to the Carolinas. The winds aloft, which had been westerly, changed to northerly as far south as Florida. By the morning of the 21st a further slight decrease in pressure along the South Carolina coast, together with a slight rise over Virginia and North Carolina, resulted in a wind shift line that extended from about 75 miles east of Cape Hatteras southwestward to Charleston. However, there was no material change in air mass as shown by airplane flights made at Washington, Norfolk, and Montgomery. The barometer at Wilmington and Savannah read 29.92 inches, and at Charleston 29.90 inches, so that a slight secondary disturbance was shown on the map at that place. As a rule, such minor disturbances quickly disappear, or else move off to the east or northeast; but with the upper air moving from the north and north-northeast over the South Atlantic States, this one was carried south-southwestward to the vicinity of Jacksonville by the evening of the 22d. At this time the wind at 8,000 feet elevation was 54 miles per hour from the east-northeast, and at Tampa 12 miles per hour from the northwest. This was the first evidence of the deepening of the disturbance, inasmuch as there was little pressure gradient at the surface.

During the night of the 22d-23d the disturbance crossed the Florida peninsula and entered the Gulf of Mexico. For nearly 48 hours it moved steadily in a west-southwesterly direction with slowly increasing intensity. It was then (8 p.m. July 24) centered about 200 miles southeast of Galveston and was apparently still moving west-southwestward. However, a corrected report received later from M.S. *Sharon* in lat. 26°8′ N., long. 93°6′ W., (the only vessel near or west of the center) indicated that the direction of movement had, since the 1 p.m. vessel reports, changed to west, so that the center the following morning was about 60 miles farther north than was indicated from the 8 p.m. reports of the 24th. The center moved inland a short distance north of Rockport, Tex., about noon of the 25th. The lowest barometer reading reported was 29.12 inches at Corpus Christi, and the highest official wind velocity, 52 miles per hour from the south, at the same place. However, higher velocities were undoubtedly experienced between Corpus Christi and Freeport.

The first advisory warning was issued at 9 p.m. of the 23d. Storm warnings were ordered displayed from Brownsville to Port O'Connor at 9:30 p.m. of the 24th, and hurricane warnings north of Corpus Christi and south of Galveston at 9:30 a.m. of the 25th. Storm warnings were ordered at Galveston at the same time.

The total monetary loss from this storm has been variously estimated at $1,000,000 to $2,000,000. Three lives were lost on or near the coast (1 at Texas City and 2 at Freeport), while 8 persons were killed in tornadoes that occurred at Morales and Wink, Tex., in the right front quadrant of the storm.

# BIBLIOGRAPHY

C. FITZHUGH TALMAN, *in charge of Library*

## RECENT ADDITIONS

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies:

**Brooks, Charles**

The tornado of 1851, in Medford, West Cambridge and Waltham, Middlesex County, Mass. Being a report by Rev. Charles Brooks, and reports by other committees. Boston, J. M. Usher, 1852. 72 p. front. 15½ cm.

**Clayton, Henry Helm**

World weather and solar activity. Washington, The Smithsonian institution, 1934. 1. p. 1., 52 p. incl. illus. (maps), tables, diagrs., fold. maps. 24½ cm. (Smithsonian miscellaneous collections. v. 89, no. 15.) Publication 3245. At head of title: Roebling fund.

**Curzon, Julian, *pseud***

The great cyclone at St. Louis and East St. Louis, May 27, 1896. Being a full history of the most terrifying and destructive tornado in the history of the world, with numerous thrilling and pathetic incidents and personal experiences of those who were in the track of the storm. Also an account of the wonderful manifestations of sympathy for the afflicted in all parts of the world. Compiled and edited by Julian Curzon. St. Louis, Cyclone publishing company [1896]. [3]–416 p. incl. illus., plates. 20 cm.

**Fisk, Dorothy**

Exploring the upper atmosphere. With an introduction by Henry Leopold Brose . . . illustrated by Leonard Starbuck. London, Faber and Faber, limited [1934]. 2 p. 1., 7–166 p. incl. front., illus., diagrs. 20½ cm.

**Manila. Harbor Board**

The port of Manila, Philippine Islands. A yearbook. 1934– Manila, P. I. [1934–] v. 1. 55 p. illus. (part. fold.), tables. 23 cm. "Compiled, published, and distributed by the Manila Harbor board," 1934–. [Meteorology, pp. 25 ff. and 31 ff.]

**Williamson, Robert M.**

Visibility, a new element in meteorological observation. 1934. p. 93–99. 23 cm. (Excerpt: Tennessee academy of science. Journal. v. 9, no. 2. April, 1934.)